Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] *1.*A dither algorithm, for four-time resolution refining for an image comprising a plurality of frames scanned with a plurality of pixels, each pixel comprising a plurality of bits, an observed unit being a 4x2 block of the pixels, the observed unit having a first sub unit and a second sub unit, each the sub unit comprising a 2x2 block of the pixels, the 2x2 block having an upper-left pixel, an upper-right pixel, a lower-left pixel, and a lower-right pixel, the 2x2 block having an upper row consisting of the upper-left pixel and the upper-right pixel, and having a lower row consisting of the lower-left pixel and the lower-right pixel, the dither algorithm comprising:
for each of the pixels of the first sub unit of the observed unit,
when the 2-bit least significant bits (LSBs) being 00, no operation is rendered,
when the 2-bit LSBs being 01, a first operation is rendered in repeated sequential fashion in a four-frame period to the upper-left pixel, the lower-right pixel, the lower-left pixel, and the upper-right pixel,
when the 2-bit LSBs being 10, a second operation is rendered in repeated sequential fashion in a two-frame pe-

riod to the pixels of the lower row and the pixels of the upper row,
when the 2-bit LSBs being 11, a third operation is rendered as the first operation is; and
for each of the pixels of the second sub unit of the observed unit,
when the 2-bit LSBs being 00, no operation is rendered,
when the 2-bit LSBs being 01, a fourth operation is rendered in repeated sequential fashion in the four-frame period to the lower-left pixel, the upper-right pixel, the upper-left pixel, and the lower-right pixel,
when the 2-bit LSBs being 10, a fifth operation is rendered in repeated sequential fashion in the two-frame period as the second operation is,
when the 2-bit LSBs being 11, a sixth operation is rendered in a repeated sequential fashion in the four-frame period as the fourth operation is.

[c2] *2.*The algorithm as recited in claim *1*, wherein
the first operation is a carry;
the second operation is the carry;
the third operation is a none-carry;
the fourth operation is the carry;
the fifth operation is the carry; and
the sixth operation is the none-carry.

[c3] *3*.The algorithm as recited in claim *2*, wherein
the carry comprises adding one to the remaining bits except the 2-bit LSBs of the pixel, and adding zero to the remaining bits except the 2-bit LSBs of the other pixels of the 2x2 block; and
the none-carry comprises adding zero to the remaining bits except the 2-bit LSBs of the pixel, and adding one to the remaining bits except the 2-bit LSBs of the other pixels of the 2x2 block.

[c4] *4*.A dither algorithm, for four-time resolution refining for an image comprising a plurality of frames scanned with a plurality of pixels, each pixel comprising a plurality of bits, an observed unit being a 4x2 block of the pixels, the observed unit having a first sub unit and a second sub unit, each the sub unit comprising a 2x2 block of the pixels, the 2x2 block having an upper-left pixel, an upper-right pixel, a lower-left pixel, and a lower-right pixel, the 2x2 block having an upper row consisting of the upper-left pixel and the upper-right pixel, and having a lower row consisting of the lower-left pixel and the lower-right pixel, the dither algorithm comprising:
for each of the pixels of the first sub unit of the observed unit,
when the 2-bit least significant bits (LSBs) being 00, no operation is rendered,

when the 2-bit LSBs being 01, a first operation is rendered in repeated sequential fashion in a four-frame period to the upper-left pixel, the upper-right pixel, the lower-left pixel, the and lower-right pixel,
when the 2-bit LSBs being 10, a second operation is rendered in repeated sequential fashion in a two-frame period to the lower rowtemptemp and the upper row,
when the 2-bit LSBs being 11, a third operation is rendered as the first operation is; and
for each of the pixels of the second sub unit of the observed unit,
when the 2-bit LSBs being 00, no operation is rendered,
when the 2-bit LSBs being 01, a fourth operation is rendered in repeated sequential fashion in the four-frame period to the lower-left pixel, the lower-right pixel, the upper-left pixel, and the upper-right pixel,
when the 2-bit LSBs being 10, a fifth operation is rendered as the second operation is,
when the 2-bit LSBs being 11, a sixth operation is rendered as the fourth operation is.

[c5] *5*.The algorithm as recited in claim *4*, wherein
the first operation is a carry;
the second operation is the carry;
the third operation is a none-carry;
the fourth operation is the carry;

the fifth operation is the carry; and
the sixth operation is the none-carry.

[c6] *6.*The algorithm as recited in claim *5*, wherein
the carry comprises adding one to the remaining bits except the 2-bit LSBs of the pixel, and adding zero to the remaining bits except the 2-bit LSBs of the other pixels of the 2x2 block; and
the none-carry comprises adding zero to the remaining bits except the 2-bit LSBs of the pixel, and adding one to the remaining bits except the 2-bit LSBs of the other pixels of the 2x2 block.